

ISO metric screw threads —

Part 2: Specification for selected limits of size

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British Electrical and Allied Manufacturers' Association (BEAMA)*	Health and Safety Executive
British Gas Corporation	Institution of Gas Engineers
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Bicycle Association of Great Britain	Screw Thread Tool Manufacturers' Association
British Industrial Fasteners Federation	Society of British Aerospace Companies Limited
British Railways Board	Individual manufacturer
Business Equipment Trade Association	
Fasteners and Turned Parts Institute	

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Foreword

This British Standard has been prepared under the direction of the Mechanical Engineering Standards Committee. It supersedes BS 3643-2:1966 and BS 3643-3:1967, which are therefore withdrawn.

BS 3643-1 contains details of the basic thread profile, general plan of standard diameter/pitch combinations, basic thread dimensions, tolerance principles and basic data from the latest ISO metric screw thread standards.

The previous edition of BS 3643-2 specified the limits and tolerances for coarse pitch series threads in the range 1 mm to 68 mm diameter. The previous edition of BS 3643-3 specified the limits and tolerances for fine (constant) pitch threads in the range 1 mm to 300 mm diameter.

In both Parts 2 and 3, three classes of fit were given, “close”, “medium” and “free”, the respective nut/bolt tolerance classes being 5H/4h, 6H/6g and 7H/8g. The same tolerance classes have been used as the basis for this standard but in addition the tolerance class 4H is specified for pitches up to and including 0.45 mm to align with Part 1. The selection of nut/bolt tolerance classes rests with the designer, based on the information given in Part 1.

This edition of Part 2 combines the information previously given in both Parts 2 and 3, and is set out in a single table so as to present designers and users with the limits and tolerances for ISO metric threads in the most convenient form.

For further detailed information see BS 3643-1.

Pending the publication of a British Standard on coated threads, which will be based on ISO/DIS 4042, BS 3382 should be consulted for guidance.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 40, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of this British Standard specifies the fundamental deviations, tolerances and limits of size for the tolerance classes 4H, 5H, 6H and 7H for internal threads (nuts) and 4h, 6g and 8g for external threads (bolts) where appropriate for:

- coarse pitch series within the range 1 mm to 68 mm diameter;
- fine pitch series within the range 1 mm to 33 mm diameter;
- constant pitch series within the range 8 mm to 300 mm diameter.

For certain diameter/pitch combinations tolerance class 4H for internal threads and tolerance classes 6h and 4g for external threads have been included in appendix A primarily for aerospace use.

NOTE Attention is drawn to the fact that, with the different screw thread forms available, there is the possibility of mismatch. It is the responsibility of the designer of the end product to ensure that this possibility is reduced to a minimum. For further information see PD 6494.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Designation

The complete designation for a screw thread shall comprise a designation for the thread system and a designation for the thread tolerance class (see 4.3 and 6.4 of BS 3643-1:1981).

Examples:

Bolt thread

M10 – 6g

Thread of 10 mm nominal diameter in the coarse thread series _____

Tolerance class for pitch and major diameters _____

M10 x 1 – 6g

Thread of 10 mm nominal diameter having a pitch of 1 mm _____

Tolerance class for pitch and major diameters _____

Nut thread

M10 – 6H

Thread of 10 mm nominal diameter in the coarse thread series _____

Tolerance class for pitch and minor diameters _____

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

NOTE For the minor diameter of external threads this table specifies the minimum dimensions only. The maximum dimensions have not been specified based on the requirement of 6.10 of BS 3643-1:1981 that these dimensions are controlled by the GO gauge.

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	constant	Tolerance class	Fund. dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund. dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.	min.			min.	max.	tol.	min.	max.	tol.	min.
1		0.2		4h 6g	0 0.017	1.000 0.983	0.036 0.056	0.964 0.927	0.870 0.853	0.030 0.048	0.840 0.805	0.717 0.682	4H 5H	0 0	1.000 1.000	0.910 0.894	0.040 0.056	0.870 0.838	0.821 0.785	0.038 0.056	0.783 0.729
	0.25			4h 6g	0 0.018	1.000 0.982	0.042 0.067	0.958 0.915	0.838 0.820	0.034 0.053	0.804 0.767	0.649 0.613	4H 5H	0 0	1.000 1.000	0.883 0.894	0.045 0.056	0.838 0.838	0.774 0.785	0.045 0.056	0.729 0.729
1.1		0.2		4h 6g	0 0.017	1.100 1.083	0.036 0.056	1.064 1.027	0.970 0.953	0.030 0.048	0.940 0.905	0.817 0.782	4H 5H	0 0	1.100 1.100	1.010 0.994	0.040 0.056	0.970 0.938	0.921 0.885	0.038 0.056	0.883 0.829
	0.25			4h 6g	0 0.018	1.100 1.082	0.042 0.067	1.058 1.015	0.938 0.920	0.034 0.053	0.904 0.867	0.750 0.713	4H 5H	0 0	1.100 1.100	0.983 0.994	0.045 0.056	0.938 0.938	0.874 0.885	0.045 0.056	0.829 0.829
1.2		0.2		4h 6g	0 0.017	1.200 1.183	0.036 0.056	1.164 1.127	1.070 1.053	0.030 0.048	1.040 1.005	0.917 0.882	4H 5H	0 0	1.200 1.200	1.110 1.083	0.040 0.056	1.070 1.038	1.021 0.985	0.038 0.056	0.983 0.929
	0.25			4h 6g	0 0.018	1.200 1.182	0.042 0.067	1.158 1.115	1.038 1.020	0.034 0.053	1.004 0.967	0.850 0.813	4H 5H	0 0	1.200 1.200	1.083 1.094	0.045 0.056	1.038 1.038	0.974 0.985	0.045 0.056	0.929 0.929
1.4		0.2		4h 6g	0 0.017	1.400 1.383	0.036 0.056	1.364 1.327	1.270 1.253	0.030 0.048	1.240 1.205	1.117 1.082	4H	0	1.400	1.310	0.040	1.270	1.221	0.038	1.183
	0.3			4h 6g	0	1.400	0.048	1.352	1.205	0.036	1.169	0.984	4H	0	1.400	1.253	0.048	1.205	1.128	0.053	1.075
				4h 6g	0 0.018	1.382 1.382	0.075 0.075	1.307 1.307	1.187 1.187	0.056 0.056	1.131 1.131	0.946 0.946	5H 6H	0 0	1.400 1.400	1.265 1.280	0.060 0.075	1.205 1.205	1.142 1.160	0.067 0.085	1.075 1.075
1.6		0.2		4h 6g	0 0.017	1.600 1.583	0.036 0.056	1.564 1.527	1.470 1.453	0.032 0.050	1.438 1.403	1.315 1.280	4H	0	1.600	1.512	0.042	1.470	1.421	0.038	1.383
	0.35			4h 6g	0 0.019	1.600 1.581	0.053 0.085	1.547 1.496	1.373 1.354	0.040 0.063	1.333 1.291	1.117 1.075	4H 5H 6H	0 0 0	1.600 1.600 1.600	1.426 1.440 1.458	0.053 0.067 0.085	1.373 1.373 1.373	1.284 1.301 1.321	0.063 0.080 0.100	1.221 1.221 1.221

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	constant	Tolerance class	Fund. dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund. dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.	min.				max.	tol.	min.	max.	tol.	min.
1.8		0.2		4h 6g	0 0.017	1.800 1.783	0.036 0.056	1.764 1.727	1.670 1.653	0.032 0.050	1.638 1.603	1.515 1.480	4H	0	1.800	1.712	0.042	1.670	1.621	0.038	1.583
	0.35			4h 6g	0 0.019	1.800 1.781	0.053 0.085	1.747 1.696	1.573 1.554	0.040 0.063	1.533 1.491	1.317 1.275	4H 5H 6H	0 0 0	1.800 1.800 1.800	1.626 1.640 1.658	0.053 0.067 0.085	1.573 1.573 1.573	1.484 1.501 1.521	0.063 0.080 0.100	1.421 1.421 1.421
2		0.25		4h 6g	0 0.018	2.000 1.982	0.042 0.067	1.958 1.915	1.838 1.820	0.036 0.056	1.802 1.764	1.648 1.610	4H 5H	0 0	2.000 2.000	1.886 1.898	0.048 0.060	1.838	1.774 1.785	0.045 0.056	1.729 1.729
	0.4			4h 6g	0 0.019	2.000 1.981	0.060 0.095	1.940 1.886	1.740 1.721	0.042 0.067	1.698 1.654	1.452 1.408	4H 5H 6H	0 0 0	2.000 2.000 2.000	1.796 1.811 1.830	0.056 0.071 0.090	1.740 1.740 1.740	1.638 1.657 1.679	0.071 0.090 0.112	1.567 1.567 1.567
2.2		0.25		4h 6g	0 0.018	2.200 2.182	0.042 0.067	2.158 2.115	2.038 2.020	0.036 0.056	2.002 1.964	1.848 1.810	4H 5H	0 0	2.200 2.200	2.086 2.098	0.048 0.060	2.038	1.974 1.985	0.045 0.056	1.929 1.929
	0.45			4h 6g	0 0.020	2.200 2.180	0.063 0.100	2.137 2.080	1.908 1.888	0.045 0.071	1.863 1.817	1.585 1.539	4H 5H 6H	0 0 0	2.200 2.200 2.200	1.968 1.983 2.003	0.060 0.075 0.095	1.908	1.793 1.813 1.838	0.080 0.100 0.125	1.713 1.713 1.713
2.5		0.35		4h 6g	0 0.019	2.500 2.481	0.053 0.085	2.447 2.396	2.273 2.254	0.040 0.063	2.233 2.191	2.017 1.975	4H 5H 6H	0 0 0	2.500 2.500 2.500	2.326 2.340 2.358	0.053 0.067 0.085	2.273	2.184 2.201 2.221	0.063 0.080 0.100	2.121 2.121 2.121
	0.45			4h 6g	0 0.020	2.500 2.480	0.063 0.100	2.437 2.380	2.208 2.188	0.045 0.071	2.163 2.117	1.885 1.839	4H 5H 6H	0 0 0	2.500 2.500 2.500	2.268 2.283 2.303	0.060 0.075 0.095	2.208	2.093 2.113 2.138	0.080 0.100 0.125	2.013 2.013 2.013
3		0.35		4h 6g	0 0.019	3.000 2.981	0.053 0.085	2.947 2.896	2.773 2.754	0.042 0.067	2.731 2.687	2.515 2.471	4H 5H 6H	0 0 0	3.000 3.000 3.000	2.829 2.844 2.863	0.056 0.071 0.090	2.773	2.684 2.701 2.721	0.063 0.080 0.100	2.621 2.621 2.621
	0.5			4h 6g	0 0.020	3.000 2.980	0.067 0.106	2.933 2.874	2.675 2.655	0.048 0.075	2.627 2.580	2.319 2.272	5H 6H 7H	0 0 0	3.000 3.000 3.000	2.755 2.775 2.800	0.080 0.100 0.125	2.675	2.571 2.599 2.639	0.112 0.140 0.180	2.459 2.459 2.459

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	constant	Tolerance class	Fund dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.					min.	max.	tol.	min.	max.	tol.
3.5		0.35		4h 6g	0 0.019	3.500 3.481	0.053 0.085	3.447 3.396	3.273 3.254	0.042 0.067	3.231 3.187	3.015 2.971	4H 5H 6H	0 0 0	3.500 3.500 3.500	3.329 3.344 3.363	0.056 0.071 0.090	3.273 3.273 3.273	3.184 3.201 3.221	0.063 0.080 0.100	3.121 3.121 3.121
	0.6			4h 6g	0 0.021	3.500 3.479	0.080 0.125	3.420 3.354	3.110 3.089	0.053 0.085	3.057 3.004	2.688 2.635	5H 6H 7H	0 0 0	3.500 3.500 3.500	3.200 3.222 3.250	0.090 0.112 0.140	3.110 3.110 3.110	2.975 3.010 3.050	0.125 0.160 0.200	2.850 2.850 2.850
4		0.5		4h 6g	0 0.020	4.000 3.980	0.067 0.106	3.933 3.874	3.675 3.655	0.048 0.075	3.627 3.580	3.319 3.272	5H 6H 7H	0 0 0	4.000 4.000 4.000	3.755 3.775 3.800	0.080 0.100 0.125	3.675 3.675 3.675	3.571 3.599 3.639	0.112 0.140 0.180	3.459 3.459 3.459
	0.7			4h 6g	0 0.022	4.000 3.978	0.090 0.140	3.910 3.838	3.545 3.523	0.056 0.090	3.489 3.433	3.058 3.002	5H 6H 7H	0 0 0	4.000 4.000 4.000	3.640 3.663 3.695	0.095 0.118 0.150	3.545 3.545 3.545	3.382 3.422 3.466	0.140 0.180 0.224	3.242 3.242 3.242
4.5		0.5		4h 6g	0 0.020	4.500 4.480	0.067 0.106	4.433 4.374	4.175 4.155	0.048 0.075	4.127 4.080	3.819 3.772	5H 6H 7H	0 0 0	4.500 4.500 4.500	4.255 4.275 4.300	0.080 0.100 0.125	4.175 4.175 4.175	4.071 4.099 4.139	0.112 0.140 0.180	3.959 3.959 3.959
	0.75			4h 6g	0 0.022	4.500 4.478	0.090 0.140	4.410 4.338	4.013 3.991	0.056 0.090	3.957 3.901	3.495 3.439	5H 6H 7H	0 0 0	4.500 4.500 4.500	4.108 4.131 4.163	0.095 0.118 0.150	4.013 4.013 4.013	3.838 3.878 3.924	0.150 0.190 0.236	3.688 3.688 3.688
5		0.5		4h 6g	0 0.020	5.000 4.980	0.067 0.106	4.933 4.874	4.675 4.655	0.048 0.075	4.627 4.580	4.319 4.272	5H 6H 7H	0 0 0	5.000 5.000 5.000	4.755 4.775 4.800	0.080 0.100 0.125	4.675 4.675 4.675	4.571 4.599 4.639	0.112 0.140 0.180	4.459 4.459 4.459
	0.8			4h 6g	0 0.024	5.000 4.976	0.095 0.150	4.905 4.826	4.480 4.456	0.060 0.095	4.420 4.361	3.927 3.868	5H 6H 7H	0 0 0	5.000 5.000 5.000	4.580 4.605 4.640	0.100 0.125 0.160	4.480 4.480 4.480	4.294 4.334 4.384	0.160 0.200 0.250	4.134 4.134 4.134
5.5		0.5		4h 6g	0 0.020	5.500 5.480	0.067 0.106	5.433 5.374	5.175 5.155	0.048 0.075	5.127 5.080	4.819 4.772	5H 6H 7H	0 0 0	5.500 5.500 5.500	5.255 5.275 5.300	0.080 0.100 0.125	5.175 5.175 5.175	5.071 5.099 5.139	0.112 0.140 0.180	4.959 4.959 4.959

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	constant	Tolerance class	Fund. dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund. dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.					min.	max.	tol.	min.	max.	tol.
6		0.75		4h 6g	0 0.022	6.000 5.978	0.090 0.140	5.910 5.838	5.513 5.491	0.063 0.100	5.450 5.391	4.988 4.929	5H 6H 7H	0 0 0	6.000 6.000 6.000	5.619 5.645 5.683	0.106 0.132 0.170	5.513 5.513 5.513	5.338 5.378 5.424	0.150 0.190 0.236	5.188 5.188 5.188
	1			4h 6g 8g	0 0.026 0.026	6.000 5.974 5.974	0.112 0.180 0.280	5.888 5.794 5.694	5.350 5.324 5.324	0.071 0.112 0.180	5.279 5.212 5.144	4.663 4.597 4.528	5H 6H 7H	0 0 0	6.000 6.000 6.000	5.468 5.500 5.540	0.118 0.150 0.190	5.350 5.350 5.350	5.107 5.153 5.217	0.190 0.236 0.300	4.917 4.917 4.917
		0.75		4h 6g	0 0.022	7.000 6.978	0.090 0.140	6.910 6.838	6.513 6.491	0.063 0.100	6.450 6.391	5.988 5.929	5H 6H 7H	0 0 0	7.000 7.000 7.000	6.619 6.645 6.683	0.106 0.132 0.170	6.513 6.513 6.513	6.338 6.378 6.424	0.150 0.190 0.236	6.188 6.188 6.188
	1			4h 6g 8g	0 0.026 0.026	7.000 6.974 6.974	0.112 0.180 0.280	6.888 6.794 6.694	6.350 6.324 6.324	0.071 0.112 0.180	6.279 6.212 6.144	5.663 5.596 5.528	5H 6H 7H	0 0 0	7.000 7.000 7.000	6.468 6.500 6.540	0.118 0.150 0.190	6.350 6.350 6.350	6.107 6.153 6.217	0.190 0.236 0.300	5.917 5.917 5.917
8			0.75	4h 6g	0 0.022	8.000 7.978	0.090 0.140	7.910 7.838	7.513 7.491	0.063 0.100	7.450 7.391	6.988 6.929	5H 6H 7H	0 0 0	8.000 8.000 8.000	7.619 7.645 7.683	0.106 0.132 0.170	7.513 7.513 7.513	7.338 7.378 7.424	0.150 0.190 0.236	7.188 7.188 7.188
				4h 6g 8g	0 0.026 0.026	8.000 7.974 7.974	0.112 0.180 0.280	7.888 7.794 7.694	7.350 7.324 7.324	0.071 0.112 0.180	7.279 7.212 7.144	6.663 6.596 6.528	5H 6H 7H	0 0 0	8.000 8.000 8.000	7.468 7.500 7.540	0.118 0.150 0.190	7.350 7.350 7.350	7.107 7.153 7.217	0.190 0.236 0.300	6.917 6.917 6.917
		1.25		4h 6g 8g	0 0.028 0.028	8.000 7.972 7.972	0.132 0.212 0.335	7.868 7.760 7.637	7.188 7.160 7.160	0.075 0.118 0.190	7.113 7.042 6.970	6.343 6.272 6.200	5H 6H 7H	0 0 0	8.000 8.000 8.000	7.313 7.348 7.388	0.125 0.160 0.200	7.188 7.188 7.188	6.859 6.912 6.982	0.212 0.265 0.335	6.647 6.647 6.647
				4h 6g 8g	0 0.026 0.026	9.000 8.974 8.974	0.112 0.180 0.280	8.888 8.794 8.694	8.350 8.324 8.324	0.071 0.112 0.180	8.279 8.212 8.144	7.663 7.596 7.528	5H 6H 7H	0 0 0	9.000 9.000 9.000	8.619 8.645 8.683	0.106 0.132 0.170	8.513 8.513 8.513	8.338 8.378 8.424	0.150 0.190 0.236	8.188 8.188 8.188
				4h 6g 8g	0 0.026 0.026	9.000 8.974 8.974	0.112 0.180 0.280	8.888 8.794 8.694	8.350 8.324 8.324	0.071 0.112 0.180	8.279 8.212 8.144	7.663 7.596 7.528	5H 6H 7H	0 0 0	9.000 9.000 9.000	8.468 8.500 8.540	0.118 0.150 0.190	8.350 8.350 8.350	8.107 8.153 8.217	0.190 0.236 0.300	7.917 7.917 7.917
				4h 6g 8g	0 0.028 0.028	9.000 8.972 8.972	0.132 0.212 0.335	8.868 8.760 8.637	8.188 8.160 8.160	0.075 0.118 0.190	8.113 8.042 7.970	7.343 7.272 7.200	5H 6H 7H	0 0 0	9.000 9.000 9.000	8.313 8.348 8.388	0.125 0.160 0.200	8.188 8.188 8.188	7.859 7.912 7.982	0.212 0.265 0.335	7.647 7.647 7.647

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	constant	Tolerance class	Fund. dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund. dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.					max.	tol.	min.	max.	tol.	min.
10			0.75	4h	0	10.000	0.090	9.910	9.513	0.063	9.450	8.988	5H	0	10.000	9.619	0.106	9.513	9.338	0.150	9.188
				6g	0.022	9.978	0.140	9.838	9.491	0.100	9.391	8.929	6H	0	10.000	9.645	0.132	9.513	9.378	0.190	9.188
													7H	0	10.000	9.683	0.170	9.513	9.424	0.236	9.188
			1	4h	0	10.000	0.112	9.888	9.350	0.071	9.279	8.663	5H	0	10.000	9.468	0.118	9.350	9.107	0.190	8.917
				6g	0.026	9.974	0.180	9.794	9.324	0.112	9.212	8.596	6H	0	10.000	9.500	0.150	9.350	9.153	0.236	8.917
				8g	0.026	9.974	0.280	9.694	9.324	0.180	9.144	8.528	7H	0	10.000	9.540	0.190	9.350	9.217	0.300	8.917
	1.5		1.25	4h	0	10.000	0.132	9.868	9.188	0.075	9.113	8.343	5H	0	10.000	9.313	0.125	9.188	8.859	0.212	8.647
				6g	0.028	9.972	0.212	9.760	9.160	0.118	9.042	8.272	6H	0	10.000	9.348	0.160	9.188	8.912	0.265	8.647
				8g	0.028	9.972	0.335	9.637	9.160	0.190	8.970	8.200	7H	0	10.000	9.388	0.200	9.188	8.982	0.335	8.647
11			0.75	4h	0	11.000	0.090	10.910	10.513	0.063	10.450	9.988	5H	0	11.000	10.619	0.106	10.513	10.338	0.150	10.188
				6g	0.022	10.978	0.140	10.838	10.491	0.100	10.391	9.929	6H	0	11.000	10.645	0.132	10.513	10.378	0.190	10.188
													7H	0	11.000	10.683	0.170	10.513	10.424	0.236	10.188
			1	4h	0	11.000	0.112	10.888	10.350	0.071	10.279	9.663	5H	0	11.000	10.468	0.118	10.350	10.107	0.190	9.917
				6g	0.026	10.974	0.180	10.794	10.324	0.112	10.212	9.596	6H	0	11.000	10.500	0.150	10.350	10.153	0.236	9.917
				8g	0.026	10.974	0.280	10.694	10.324	0.180	10.144	9.528	7H	0	11.000	10.540	0.190	10.350	10.217	0.300	9.917
	1.5			4h	0	11.000	0.150	10.850	10.026	0.085	9.941	9.018	5H	0	11.000	10.166	0.140	10.026	9.612	0.236	9.376
				6g	0.032	10.968	0.236	10.732	9.994	0.132	9.862	8.938	6H	0	11.000	10.206	0.180	10.026	9.676	0.300	9.376
				8g	0.032	10.968	0.375	10.593	9.994	0.212	9.782	8.858	7H	0	11.000	10.250	0.224	10.026	9.751	0.375	9.376
12			1	4h	0	12.000	0.112	11.888	11.350	0.075	11.275	10.659	5H	0	12.000	11.475	0.125	11.350	11.107	0.190	10.917
				6g	0.026	11.974	0.180	11.794	11.324	0.118	11.206	10.590	6H	0	12.000	11.510	0.160	11.350	11.153	0.236	10.917
				8g	0.026	11.974	0.280	11.694	11.324	0.190	11.134	10.518	7H	0	12.000	11.550	0.200	11.350	11.217	0.300	10.917
			1.25	4h	0	12.000	0.132	11.868	11.188	0.085	11.103	10.333	5H	0	12.000	11.328	0.140	11.188	10.859	0.212	10.647
				6g	0.028	11.972	0.212	11.760	11.160	0.132	11.028	10.257	6H	0	12.000	11.368	0.180	11.188	10.912	0.265	10.647
				8g	0.028	11.972	0.335	11.637	11.160	0.212	10.948	10.177	7H	0	12.000	11.412	0.224	11.188	10.982	0.335	10.647
			1.5	4h	0	12.000	0.150	11.850	11.026	0.090	10.936	10.012	5H	0	12.000	11.176	0.150	11.026	10.612	0.236	10.376
				6g	0.032	11.968	0.236	11.732	10.994	0.140	10.854	9.930	6H	0	12.000	11.216	0.190	11.026	10.676	0.300	10.376
				8g	0.032	11.968	0.375	11.593	10.994	0.224	10.770	9.846	7H	0	12.000	11.262	0.236	11.026	10.751	0.375	10.376
	1.75			4h	0	12.000	0.170	11.830	10.863	0.095	10.768	9.692	5H	0	12.000	11.023	0.160	10.863	10.371	0.265	10.106
				6g	0.034	11.966	0.265	11.701	10.829	0.150	10.679	9.602	6H	0	12.000	11.063	0.200	10.863	10.441	0.335	10.106
				8g	0.034	11.966	0.425	11.541	10.829	0.236	10.593	9.516	7H	0	12.000	11.113	0.250	10.863	10.531	0.425	10.106

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	constant	Tolerance class	Fund. dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund. dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.				min.	max.	tol.	min.	max.	tol.	min.
14		1		4h	0	14.000	0.112	13.888	13.350	0.075	13.275	12.659	5H	0	14.000	13.475	0.125	13.350	13.107	0.190	12.917
				6g	0.026	13.974	0.180	13.794	13.324	0.118	13.206	12.590	6H	0	14.000	13.510	0.160	13.350	13.153	0.236	12.917
				8g	0.026	13.974	0.280	13.694	13.324	0.190	13.134	12.518	7H	0	14.000	13.550	0.200	13.350	13.217	0.300	12.917
		1.25		4h	0	14.000	0.132	13.868	13.188	0.085	13.103	12.333	5H	0	14.000	13.328	0.140	13.188	12.859	0.212	12.647
				6g	0.028	13.972	0.212	13.760	13.160	0.132	13.028	12.257	6H	0	14.000	13.368	0.180	13.188	12.912	0.265	12.647
				8g	0.028	13.972	0.335	13.637	13.160	0.212	12.948	12.177	7H	0	14.000	13.412	0.224	13.188	12.982	0.335	12.647
		1.5		4h	0	14.000	0.150	13.850	13.026	0.090	12.936	12.012	5H	0	14.000	13.176	0.150	13.026	12.612	0.236	12.376
				6g	0.032	13.968	0.236	13.732	12.994	0.140	12.854	11.930	6H	0	14.000	13.216	0.190	13.026	12.676	0.300	12.376
				8g	0.032	13.968	0.375	13.593	12.994	0.224	12.770	11.846	7H	0	14.000	13.262	0.236	13.026	12.751	0.375	12.376
	2			4h	0	14.000	0.180	13.820	12.701	0.100	12.601	11.369	5H	0	14.000	12.871	0.170	12.701	12.135	0.300	11.835
				6g	0.038	13.962	0.280	13.682	12.663	0.160	12.503	11.271	6H	0	14.000	12.913	0.212	12.701	12.210	0.375	11.835
				8g	0.038	13.962	0.450	13.512	12.663	0.250	12.413	11.181	7H	0	14.000	12.966	0.265	12.701	12.310	0.475	11.835
15		1		4h	0	15.000	0.112	14.888	14.350	0.075	14.275	13.659	5H	0	15.000	14.475	0.125	14.350	14.107	0.190	13.917
				6g	0.026	14.974	0.180	14.794	14.324	0.118	14.206	13.590	6H	0	15.000	14.510	0.160	14.350	14.153	0.236	13.917
				8g	0.026	14.974	0.280	14.694	14.324	0.190	14.134	13.518	7H	0	15.000	14.550	0.200	14.350	14.217	0.300	13.917
		1.5		4h	0	15.000	0.150	14.850	14.026	0.090	13.936	13.012	5H	0	15.000	14.176	0.150	14.026	13.612	0.236	13.376
				6g	0.032	14.968	0.236	14.732	13.994	0.140	13.854	12.930	6H	0	15.000	14.216	0.190	14.026	13.676	0.300	13.376
				8g	0.032	14.968	0.375	14.593	13.994	0.224	13.770	12.846	7H	0	15.000	14.262	0.236	14.026	13.751	0.375	13.376
16		1		4h	0	16.000	0.112	15.888	15.350	0.075	15.275	14.659	5H	0	16.000	15.475	0.125	15.350	15.107	0.190	14.917
				6g	0.026	15.974	0.180	15.794	15.324	0.118	15.206	14.590	6H	0	16.000	15.510	0.160	15.350	15.153	0.236	14.917
				8g	0.026	15.974	0.280	15.694	15.324	0.190	15.134	14.518	7H	0	16.000	15.550	0.200	15.350	15.217	0.300	14.917
		1.5		4h	0	16.000	0.150	15.850	15.026	0.090	14.936	14.012	5H	0	16.000	15.176	0.150	15.026	14.612	0.236	14.376
				6g	0.032	15.968	0.236	15.732	14.994	0.140	14.854	13.930	6H	0	16.000	15.216	0.190	15.026	14.676	0.300	14.376
				8g	0.032	15.968	0.375	15.593	14.994	0.224	14.770	13.846	7H	0	16.000	15.262	0.236	15.026	14.751	0.375	14.376
	2			4h	0	16.000	0.180	15.820	14.701	0.100	14.601	13.369	5H	0	16.000	14.871	0.170	14.701	14.135	0.300	13.835
				6g	0.038	15.962	0.280	15.682	14.663	0.160	14.503	13.271	6H	0	16.000	14.913	0.212	14.701	14.210	0.375	13.835
				8g	0.038	15.962	0.450	15.512	14.663	0.250	14.413	13.181	7H	0	16.000	14.966	0.265	14.701	14.310	0.475	13.835
17		1		4h	0	17.000	0.112	16.888	16.350	0.075	16.275	15.659	5H	0	17.000	16.475	0.125	16.350	16.107	0.190	15.917
				6g	0.026	16.974	0.180	16.794	16.324	0.118	16.206	15.590	6H	0	17.000	16.510	0.160	16.350	16.153	0.236	15.917
				8g	0.026	16.974	0.280	16.694	16.324	0.190	16.134	15.518	7H	0	17.000	16.550	0.200	16.350	16.217	0.300	15.917
		1.5		4h	0	17.000	0.150	16.850	16.026	0.090	15.936	15.012	5H	0	17.000	16.176	0.150	16.026	15.612	0.236	15.376
				6g	0.032	16.968	0.236	16.732	15.994	0.140	15.854	14.930	6H	0	17.000	16.216	0.190	16.026	15.676	0.300	15.376
				8g	0.032	16.968	0.375	16.593	15.994	0.224	15.770	14.846	7H	0	17.000	16.262	0.236	16.026	15.751	0.375	15.376

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)									
	Coarse	Fine	constant	Tolerance class	Fund dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund dev.	Major diameter	Pitch diameter			Minor diameter			
						max.	tol.	min.	max.	tol.	min.					min.	max.	tol.	min.	max.	tol.	min.
18			1	4h 6g 8g	0 0.026 0.026	18.000 17.974 17.974	0.112 0.180 0.280	17.888 17.794 17.694	17.350 17.324 17.324	0.075 0.118 0.190	17.275 17.206 17.134	16.659 16.590 16.518	5H 6H 7H	0 0 0	18.000 18.000 18.000	17.475 17.510 17.550	0.125 0.160 0.200	17.350 17.350 17.350	17.107 17.153 17.217	0.190 0.236 0.300	16.917 16.917 16.917	
		1.5		4h 6g 8g	0 0.032 0.032	18.000 17.968 17.968	0.150 0.236 0.375	17.850 17.732 17.593	17.026 16.994 16.994	0.090 0.140 0.224	16.936 16.854 16.770	16.012 15.930 15.846	5H 6H 7H	0 0 0	18.000 18.000 18.000	17.176 17.216 17.262	0.150 0.190 0.236	17.026 17.026 17.026	16.612 16.676 16.751	0.236 0.300 0.375	16.376 16.376 16.376	
			2	4h 6g 8g	0 0.038 0.038	18.000 17.962 17.962	0.180 0.280 0.450	17.820 17.682 17.512	16.701 16.663 16.663	0.100 0.160 0.250	16.601 16.503 16.413	15.369 15.271 15.181	5H 6H 7H	0 0 0	18.000 18.000 18.000	16.871 16.913 16.966	0.170 0.212 0.265	16.701 16.701 16.701	16.135 16.210 16.310	0.300 0.375 0.475	15.835 15.835 15.835	
		2.5		4h 6g 8g	0 0.042 0.042	18.000 17.958 17.958	0.212 0.335 0.530	17.788 17.623 17.428	16.376 16.334 16.334	0.106 0.170 0.265	16.270 16.164 16.069	14.730 14.624 14.529	5H 6H 7H	0 0 0	18.000 18.000 18.000	16.556 16.600 16.656	0.180 0.224 0.280	16.376 16.376 16.376	15.649 15.744 15.854	0.355 0.450 0.560	15.294 15.294 15.294	
	20			1	4h 6g 8g	0 0.026 0.026	20.000 19.974 19.974	0.112 0.180 0.280	19.888 19.794 19.694	19.350 19.324 19.324	0.075 0.118 0.190	19.275 19.206 19.134	18.659 18.590 18.518	5H 6H 7H	0 0 0	20.000 20.000 20.000	19.475 19.510 19.550	0.125 0.160 0.200	19.350 19.350 19.350	19.107 19.153 19.217	0.190 0.236 0.300	18.917 18.917 18.917
			1.5		4h 6g 8g	0 0.032 0.032	20.000 19.968 19.968	0.150 0.236 0.375	19.850 19.732 19.593	19.026 18.994 18.994	0.090 0.140 0.224	18.936 18.854 18.770	18.012 17.930 17.846	5H 6H 7H	0 0 0	20.000 20.000 20.000	19.176 19.216 19.262	0.150 0.190 0.236	19.026 19.026 19.026	18.612 18.676 18.751	0.236 0.300 0.375	18.376 18.376 18.376
				2	4h 6g 8g	0 0.038 0.038	20.000 19.962 19.962	0.180 0.280 0.450	19.820 19.682 19.512	18.701 18.663 18.663	0.100 0.160 0.250	18.601 18.503 18.413	17.369 17.271 17.181	5H 6H 7H	0 0 0	20.000 20.000 20.000	18.871 18.913 18.966	0.170 0.212 0.265	18.701 18.701 18.701	18.135 18.210 18.310	0.300 0.375 0.475	17.835 17.835 17.835
			2.5		4h 6g 8g	0 0.042 0.042	20.000 19.958 19.958	0.212 0.335 0.530	19.788 19.623 19.428	18.376 18.334 18.334	0.106 0.170 0.265	18.270 18.164 18.069	16.730 16.624 16.529	5H 6H 7H	0 0 0	20.000 20.000 20.000	18.556 18.600 18.656	0.180 0.224 0.280	18.376 18.376 18.376	17.649 17.744 17.854	0.355 0.450 0.560	17.294 17.294 17.294

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	Constant	Tolerance class	Fund. dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund. dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.				min.	max.	tol.	min.	max.	tol.	min.
22		1		4h	0	22.000	0.112	21.888	21.350	0.075	21.275	20.659	5H	0	22.000	21.475	0.125	21.350	21.107	0.190	20.917
				6g	0.026	21.974	0.180	21.794	21.324	0.118	21.206	20.590	6H	0	22.000	21.510	0.160	21.350	21.153	0.236	20.917
				8g	0.026	21.974	0.280	21.694	21.324	0.190	21.134	20.518	7H	0	22.000	21.550	0.200	21.350	21.217	0.300	20.917
		1.5		4h	0	22.000	0.150	21.850	21.026	0.090	20.936	20.012	5H	0	22.000	21.176	0.150	21.026	20.612	0.236	20.376
				6g	0.032	21.968	0.236	21.732	20.994	0.140	20.854	19.930	6H	0	22.000	21.216	0.190	21.026	20.676	0.300	20.376
				8g	0.032	21.968	0.375	21.593	20.994	0.224	20.770	19.846	7H	0	22.000	21.262	0.236	21.026	20.751	0.375	20.376
		2		4h	0	22.000	0.180	21.820	20.701	0.100	20.601	19.369	5H	0	22.000	20.871	0.170	20.701	20.135	0.300	19.835
				6g	0.038	21.962	0.280	21.682	20.663	0.160	20.503	19.271	6H	0	22.000	20.913	0.212	20.701	20.210	0.375	19.835
				8g	0.038	21.962	0.450	21.512	20.663	0.250	20.413	19.181	7H	0	22.000	20.966	0.265	20.701	20.310	0.475	19.835
	2.5			4h	0	22.000	0.212	21.788	20.376	0.106	20.270	18.730	5H	0	22.000	20.556	0.180	20.376	19.649	0.335	19.294
				6g	0.042	21.958	0.335	21.623	20.334	0.170	20.164	18.624	6H	0	22.000	20.600	0.224	20.376	19.744	0.450	19.294
				8g	0.042	21.958	0.530	21.428	20.334	0.265	20.069	18.529	7H	0	22.000	20.656	0.280	20.376	19.854	0.560	19.294
24		1		4h	0	24.000	0.112	23.888	23.350	0.080	23.270	22.654	5H	0	24.000	23.482	0.132	23.350	23.107	0.190	22.917
				6g	0.026	23.974	0.180	23.794	23.324	0.125	23.199	22.583	6H	0	24.000	23.520	0.170	23.350	23.153	0.236	22.917
				8g	0.026	23.974	0.280	23.694	23.324	0.200	23.124	22.508	7H	0	24.000	23.562	0.212	23.350	23.217	0.300	22.917
		1.5		4h	0	24.000	0.150	23.850	23.026	0.095	22.931	22.007	5H	0	24.000	23.186	0.160	23.026	22.612	0.236	22.376
				6g	0.032	23.968	0.236	23.732	22.994	0.150	22.844	21.920	6H	0	24.000	23.226	0.200	23.026	22.676	0.300	22.376
				8g	0.032	23.968	0.375	23.593	22.994	0.236	22.758	21.834	7H	0	24.000	23.276	0.250	23.026	22.751	0.375	22.376
		2		4h	0	24.000	0.180	23.820	22.701	0.106	22.595	21.363	5H	0	24.000	22.881	0.180	22.701	22.135	0.300	21.835
				6g	0.038	23.962	0.280	23.682	22.663	0.170	22.493	21.261	6H	0	24.000	22.925	0.224	22.701	22.210	0.375	21.835
				8g	0.038	23.962	0.450	23.512	22.663	0.265	22.398	21.166	7H	0	24.000	22.981	0.280	22.701	22.310	0.475	21.835
	3			4h	0	24.000	0.236	23.764	22.051	0.125	21.926	20.078	5H	0	24.000	22.263	0.212	22.051	21.152	0.400	20.752
				6g	0.048	23.952	0.375	23.577	22.003	0.200	21.803	19.955	6H	0	24.000	22.316	0.265	22.051	21.252	0.500	20.752
				8g	0.048	23.952	0.600	23.352	22.003	0.315	21.688	19.840	7H	0	24.000	22.386	0.335	22.051	21.382	0.630	20.752
25		1		4h	0	25.000	0.112	24.888	24.350	0.080	24.270	23.654	5H	0	25.000	24.482	0.132	24.350	24.107	0.190	23.917
				6g	0.026	24.974	0.180	24.794	24.324	0.125	24.199	23.583	6H	0	25.000	24.520	0.170	24.350	24.153	0.236	23.917
				8g	0.026	24.974	0.280	24.694	24.324	0.200	24.124	23.508	7H	0	25.000	24.562	0.212	24.350	24.217	0.300	23.917
		1.5		4h	0	25.000	0.150	24.850	24.026	0.095	23.931	23.007	5H	0	25.000	24.186	0.160	24.026	23.612	0.236	23.376
				6g	0.032	24.968	0.236	24.732	23.994	0.150	23.844	22.920	6H	0	25.000	24.226	0.200	24.026	23.676	0.300	23.376
				8g	0.032	24.968	0.375	24.593	23.994	0.236	23.758	22.834	7H	0	25.000	24.276	0.250	24.026	23.751	0.375	23.376
		2		4h	0	25.000	0.180	24.820	23.701	0.106	23.595	22.363	5H	0	25.000	23.881	0.180	23.701	23.135	0.300	22.835
				6g	0.038	24.962	0.280	24.682	23.663	0.170	23.493	22.261	6H	0	25.000	23.925	0.224	23.701	23.210	0.375	22.835
				8g	0.038	24.962	0.450	24.512	23.663	0.265	23.398	22.166	7H	0	25.000	23.981	0.280	23.701	23.310	0.475	22.835

Table 1 — ISO metric screw threads: limits and tolerances for finished uncoated threads for normal length of engagement

All dimensions are in millimetres.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Nominal diameter	Pitch			External threads (bolts)									Internal threads (nuts)								
	Coarse	Fine	Constant	Tolerance class	Fund dev.	Major diameter			Pitch diameter			Minor diameter	Tolerance class	Fund dev.	Major diameter	Pitch diameter			Minor diameter		
						max.	tol.	min.	max.	tol.	min.					min.	max.	tol.	min.	max.	tol.
26			1.5	4h 6g 8g	0 0.032 0.032	26.000 25.968 25.968	0.150 0.236 0.375	25.850 25.732 25.593	25.026 24.994 24.994	0.095 0.150 0.236	24.931 24.844 24.758	24.007 23.920 23.834	5H 6H 7H	0 0 0	26.000 26.000 26.000	25.186 25.226 25.276	0.160 0.200 0.250	25.026 25.026 25.026	24.612 24.676 24.751	0.236 0.300 0.375	24.376 24.376 24.376
	27		1	4h 6g 8g	0 0.026 0.026	27.000 26.974 26.974	0.112 0.180 0.280	26.888 26.794 26.694	26.350 26.324 26.324	0.080 0.125 0.200	26.270 26.199 26.124	25.654 25.583 25.508	5H 6H 7H	0 0 0	27.000 27.000 27.000	26.482 26.520 26.562	0.132 0.170 0.212	26.350 26.350 26.350	26.107 26.153 26.217	0.190 0.236 0.300	25.917 25.917 25.917
			1.5	4h 6g 8g	0 0.032 0.032	27.000 26.968 26.968	0.150 0.236 0.375	26.850 26.732 26.593	26.026 25.994 25.994	0.095 0.150 0.236	25.931 25.844 25.758	25.007 24.920 24.834	5H 6H 7H	0 0 0	27.000 27.000 27.000	26.186 26.226 26.276	0.160 0.200 0.250	26.026 26.026 26.026	25.612 25.676 22.751	0.236 0.300 0.375	25.376 25.376 25.376
		2	4h 6g 8g	0 0.038 0.038	27.000 26.962 26.962	0.180 0.280 0.450	26.820 26.682 26.512	25.701 25.663 25.663	0.106 0.170 0.265	25.595 25.493 25.398	24.363 24.261 24.166	5H 6H 7H	0 0 0	27.000 27.000 27.000	25.881 25.925 25.981	0.180 0.224 0.280	25.701 25.701 25.701	25.135 25.210 25.310	0.300 0.375 0.475	24.835 24.835 24.835	
		3	4h 6g 8g	0 0.048 0.048	27.000 26.952 26.952	0.236 0.375 0.600	26.764 26.577 26.352	25.051 25.003 25.003	0.125 0.200 0.315	24.926 24.803 24.688	23.078 22.955 22.840	5H 6H 7H	0 0 0	27.000 27.000 27.000	25.263 25.316 25.386	0.212 0.265 0.335	25.051 25.051 25.051	24.152 24.252 24.382	0.400 0.500 0.630	23.752 23.752 23.752	
28			1	4h 6g 8g	0 0.026 0.026	28.000 27.974 27.974	0.112 0.180 0.280	27.888 27.794 27.694	27.350 27.324 27.324	0.080 0.125 0.200	27.270 27.199 27.124	26.654 26.583 26.508	5H 6H 7H	0 0 0	28.000 28.000 28.000	27.482 27.520 27.562	0.132 0.170 0.212	27.350 27.350 27.350	27.107 27.153 27.217	0.190 0.236 0.300	26.917 26.917 26.917
			1.5	4h 6g 8g	0 0.032 0.032	28.000 27.968 27.968	0.150 0.236 0.375	27.850 27.732 27.593	27.026 26.994 26.994	0.095 0.150 0.236	26.931 26.844 26.758	26.007 25.920 25.834	5H 6H 7H	0 0 0	28.000 28.000 28.000	27.186 27.226 27.276	0.160 0.200 0.250	27.026 27.026 27.026	26.612 26.676 26.751	0.236 0.300 0.375	26.376 26.376 26.376
			2	4h 6g 8g	0 0.038 0.038	28.000 27.962 27.962	0.180 0.280 0.450	27.820 27.682 27.512	26.701 26.663 26.663	0.106 0.170 0.265	26.595 26.493 26.390	25.363 25.261 25.166	5H 6H 7H	0 0 0	28.000 28.000 28.000	26.881 26.925 26.981	0.180 0.224 0.280	26.701 26.701 26.701	26.135 26.210 26.310	0.300 0.375 0.475	25.835 25.835 25.835